

What is Claimed is:

1. A method of inducing an immune response in an animal, comprising:

5 (a) preparing a cloned expression library from cDNA or fragmented genomic DNA of a selected cell; and

(b) introducing one or more clones of said library into the animal in a manner effective to induce an immune response against one or more antigens that may be encoded by  
10 said clone or clones.

15 2. The method of claim 1 wherein the selected cell is a pathogen.

3. The method of claim 2 wherein the pathogen is a virus, yeast, mold, yeast, algae or protozoa.

4. The method of claim 1 wherein the selected cell is a tumor cell.

5. The method of claim 1 wherein the selected cell is a bacterial cell.

20 6. The method of claim 5 wherein the bacterial cell is identified as *Mycoplasma pulmonis* or *Listeria monocytogenes*.

7. The method of claim 1 further comprising testing the animal for an immune response.

25 8. The method of claim 7 wherein the testing comprises challenging the animal with the selected cell.

9. The method of claim 7 wherein the testing comprises determining a specific binding reaction between a selected cell antigen and one or more antibodies obtained from the animal.

5 10. The method of claim 1 further comprising obtaining antibodies generated in response to one or more antigens encoded by the introduced clone or clones.

11. The method of claim 1 wherein the cloned expression library is prepared using a bacterial host cell.

10 12. The method of claim 1 wherein the cloned expression library is prepared using a mammalian host cell.

13. The method of claim 11 wherein the bacterial cell is an *E. coli*.

15 14. The method of claim 1 wherein the DNA is fragmented physically or by restriction enzymes.

15. The method of claim 14 wherein fragments are about 100-1000 bp.

20 16. The method of claim 14 wherein the fragments are about 400 bp.

17. The method of claim 1 wherein the DNA is fused to a mammalian gene.

25 18. The method of claim 17 wherein the mammalian gene encodes a fusion protein.

19. The method of claim 18 wherein the fusion protein is ubiquitin or human growth hormone.

30 20. The method of claim 1 wherein the library is about  $1 \times 10^2$  to about  $1 \times 10^7$  clones.

21. The method of claim 1 wherein the library is about  $10^3$  to about  $10^5$  clones.

22. The method of claim 1 wherein the library is about  $10^4$  clones.

5 23. The method of claim 1 wherein about 8  $\mu$ g to about 12  $\mu$ g of DNA is introduced into the animal.

24. The method of claim 1 wherein about 10  $\mu$ g of DNA is introduced into the animal.

10 25. The method of claim 24 wherein the DNA is introduced by gene gun or injection.

26. The method of claim 1 wherein the expression library comprises a vector that includes a promoter suitable for expression in a mammalian cell.

15 27. The method of claim 26 wherein the vector includes a signal sequence positioned upstream of the DNA.

28. The method of claim 1 further including identifying one or more clones that provide protection against challenge by the pathogen.

20 29. A pharmaceutical composition comprising one or more antigens of a pathogen obtained from a population of antigens expressed in an animal inoculated with a cloned expression library from cDNA or fragmented genomic DNA of said pathogen in a pharmaceutically acceptable vehicle.

25 30. The composition of claim 29 wherein the pathogen is identified as *Mycoplasma pulmonis*.

30 31. The composition of claim 29 wherein the pathogen is identified as *Listeria monocytogenes*.

32. A method of preparing an antigen, comprising:

(a) administering to an animal a pharmaceutical composition comprising one or more clones of a cloned expression library prepared from cDNA or fragmented genomic DNA of a selected cell under conditions effective to allow expression of an antigen or antigens; and

(b) identifying the antigen or antigens so expressed.

33. The method of claim 32 further comprising obtaining an antibody or antibodies generated in response to the antigen or antigens expressed by one or more clones of the expression library.

34. An antibody or antibodies obtained by administering to an animal one or more clones of an expression library prepared from cDNA or fragmented genomic DNA of a selected cell and collecting the antibody or antibodies generated in response to an antigen or antigens expressed from said DNA.

35. A kit comprising, in suitable container means, a pharmaceutically acceptable composition of a cloned genomic expression library of *Mycoplasma pulmonis* or *Listeria monocytogenes* together with means for administering said composition.

36. An immunodetection kit for detecting a pathogen, comprising:

(a) an antibody or antibodies prepared by the method of claim 34;

(b) a suitably aliquoted composition of the pathogen; and

(b) an immunodetection means.

37. The kit of claim 36 wherein the pathogen is identified as *Mycoplasma pulmonis* or *Listeria monocytogenes*.

38. A pharmaceutical composition comprising a cloned expression library from cDNA or  
5 fragmented genomic DNA of a pathogen in a pharmaceutically acceptable vehicle.

39. The composition of claim 38 wherein the pathogen is *Mycoplasma pulmonis* or *Listeria monocytogenes*.

10 40. A method of generating an immune response to a tumor cell, comprising the steps:

(a) preparing a cloned expression library from fragmented cDNA prepared from  
mammalian tumor mRNA; and

15 (b) introducing one or more clones of said expression library into a mammal in a  
manner effective to generate an immune response against one or more tumor cell antigens  
that may be encoded by said clone or clones.

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